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THE MARRIAGE RATE IN MICHIGAN, 1870–1890.

By Walter F. Willcox, Ph.D.

The term marriage rate is applied to a means of measuring and expressing in figures the strength of the social tendency or desire to marry, so far as that tendency finds realization in marriage. All exact science must be based on counting and measuring. Political economy is more exact than other social sciences, largely because price is so good a measure of the intensity of economic desires. "Money . . . is the centre around which economic science clusters . . . because in this world of ours it is the one convenient means of measuring human motive on a large scale" (Marshall, *Principles of Economics*, 2nd ed., p. 76). The extent and intensity of a community's desire for shoes are approximately measured by the number taken and the price paid. Political economy has usually given greater attention to price, and laid less emphasis on the number sold in proportion to the population, — that is, it has analyzed the *intensity* of an economic demand more carefully than its *extent*, and naturally so, because in the recorded fluctuations of price the materials for such an analysis were afforded. But how is a social desire like that for marriage to be measured? Clearly, no means for measuring its intensity are available. The sacrifice involved as a price cannot be measured in money. But in its other aspect,

its extent, the strength of the social desire to marry may be measured by finding the proportion of the community who yield to it in a certain length of time, usually a year, and this measure of the marriage tendency is given by the marriage rate. The marriage rate, then, is a means of measuring the extent of the social tendency to marry. If we assume the strength of this tendency to remain approximately constant, as it usually does in a large population, and for periods of a few years, the number of marriages will vary with the varying strength of all the social and economic forces that in civilized communities tend to counteract the tendency to marry, and thus the variations in the rate themselves become measures of the variations in the strength of these counteracting influences.

But how is this measuring done? If we knew that in one community 98 per cent of the population buy at least one pair of shoes every year, and in another community only 85 per cent do so, the knowledge might lead to interesting inferences regarding one phase of the economic condition of the two communities. But the sales of shoes and the names of the purchasers are not registered, so that the records from which this knowledge might be obtained do not exist. On the other hand, we may compute from existing records what proportion of the community each year gratifies the desire for marriage. To do this three methods of varying degrees of accuracy are employed. The number of marriages, or of persons marrying, may be compared, first, with the total population, or, secondly, with the total population of marriageable age, or, thirdly, with the total number of unmarried persons of marriageable age. The general principle is that, in measuring the extent of any social phenomenon, a comparison should be made between the number of cases in which the phenomenon occurs, and the number in which it might occur, *i. e.*, compare the actual cases with the possible. Obviously, it is impossible for children to marry, and in a monogamous country for persons already married to marry again. Hence, these

classes should, if practicable, be disregarded in making the comparison. If the question is now asked, When is a marriageable age reached? the answer is not easy. As a matter of fact, in those states where the age of the parties is given we find that in a year there are seldom a score of girls who marry under fifteen, and no more boys who marry under eighteen. Hence, it would be best to fix these as the lower limits, but the difficulties of the problem would be so much increased by the complication of assuming different ages for the two sexes that it is more common to take fifteen as the age at which a person of either sex becomes marriageable. As the number of marriages must be compared with the population of the same year, it becomes necessary to estimate the latter for the years in which no census was taken. The method of estimation used in this article is that of assuming that the amount of increase, and not its rate, was the same for each year. This simple method will give results sufficiently accurate for the matter in hand. Fortunately, Michigan is among the very few states in which all three methods above indicated are possible. The national and state censuses give the total population in 1870, 1874, 1880, 1884, and 1890, and in each census, except that of 1874, the population over fifteen is also given. On the other hand, the censuses of 1874, 1884, and 1890 give the number of persons married, and so make the last method available. The results are contained in the table on next page.

In considering this table it is necessary to ask how completely marriages are recorded in Michigan, for on the accuracy of the figures given in the second column depends the trustworthiness of all subsequent inferences. The question comes home with especial force to anyone who knows how unusual it is to find in the United States a trustworthy record of marriages covering a score of years.

Michigan, however, is one of the few states in this country in which the number of marriages has been reported for some years with approximate accuracy. In the "Report on Mar-

MICHIGAN MARRIAGE RATE, 1870-1890.*

Years.	Number of Marriages.	Marriages to 1000 People.	Marriages to 1000 People over 15.	Marriages to 1000 Unmarried People over 15.
1870	9,791	8.26	13.31	36.5
1871	10,605	8.68	13.91	37.7
1872	10,752	8.53	13.61	36.0
1873	11,897	9.17	14.56	38.0
1874	12,289	9.21	14.55	37.6
1875	11,879	8.57	13.49	34.8
1876	11,913	8.30	13.00	33.5
1877	11,899	8.00	12.50	32.1
1878	12,880	8.38	13.03	33.5
1879	13,892	8.75	13.56	34.8
1880	14,935	9.12	14.08	36.1
1881	15,894	9.33	14.45	37.1
1882	16,796	9.62	14.75	37.9
1883	17,174	9.54	14.58	37.6
1884	15,989	8.62	13.14	33.9
1885	15,885	8.38	12.73	32.6
1886	16,665	8.61	13.05	33.2
1887	17,179	8.70	13.14	33.3
1888	17,297	8.58	12.91	32.6
1889	18,316	8.91	13.38	33.5
1890	18,577	8.87	13.27	33.1
Change.		+ .61	— .04	— 3.4

riage and Divorce in the United States, 1867–1886," issued by the national Department of Labor, three groups of states are by implication recognized, one in which the number of marriages has been given for the whole period with practical completeness, including Vermont, Massachusetts, Rhode Island, Connecticut, Ohio, and the District of Columbia; a second in which the statistics of marriage are at present fairly perfect, including New Hampshire, New Jersey, Delaware, Maryland, Illinois, Michigan, Wisconsin, Minnesota, and Kansas; and a third including the other states and territories in which the marriage records are either entirely lacking or so imperfect and fragmentary that they have not been carried out in the state totals. For the first years after the Civil War the figures for Michigan were very imperfect, but since

* In the preparation of the tables for this article I have been aided by Mr. F. S. Crum, a graduate student at Cornell, and member of the class in social statistics.

1870 they have been comparatively good. The student, however, must be warned against accepting the figures given for each year in the *Michigan Registration Report* of the same year, and followed in the national report. These figures are usually enlarged in later volumes by the inclusion of delayed returns. For example, in the *Michigan Registration Report* for 1884 the number of marriages in that year is given as 15,002. But in the report for 1885 the number of marriages in 1884, corrected for additional returns, is given as 15,721; in the report for 1886 it stands as 15,863; and in the next report the number appears in its final form as 15,989. By taking the number for each year as it appears after the final correction a column of figures representing the marriages in each year is obtained which differ widely from the series as first printed. But in doing this one is occasionally baffled by finding that the same volume of the *Registration Report* may present contradictions that are irreconcilable, giving the same datum differently on different pages. (Compare the table marked Exhibit A with Table 30 in several recent volumes.) These corrections made in the later reports, and the modifications they introduce, were first carefully examined by Mr. C. M. Rippey in an editorial printed some months since in the *Detroit Tribune*, and his tabulation of the marriages and computation of the marriage rates are followed in the table above. In some cases his figures are open to question, as elsewhere contradicted in the volume from which he has taken them, but in the main these variations are slight.

Let it be granted that the corrected figures he gives represent truly, and without omissions, all the marriage ceremonies that have been solemnized in Michigan. A foreign student, or even a native not familiar with our law, would be in danger of leaping to the conclusion that they include all the marriages. In studying our marriage rates, however, it must be borne in mind that in few of our states is any ceremony necessary to constitute a marriage, and in this respect Michi-

gan agrees with the majority. For example, in a case decided in 1884, Chief Justice Cooley, of Michigan, said, "An actual ceremony of marriage is not essential to the establishment of the relation of husband and wife; it is sufficient that a man and woman of due competency, and in respect to whom no impediment exists, consent to take each other as husband and wife, and actually cohabit as such." (Peet *vs.* Peet, 52 Mich. 467.) It is impossible to judge how many "common law" marriages are contracted in Michigan without ceremony or registration, and whether the number is increasing or decreasing, but in studying the question their possibility should be remembered.

The first and second columns in the table, taken from Mr. Rippey's article before cited, illustrate the first method of computing the marriage rate; the third and fourth columns illustrate the other and better methods. If the question be asked, Has the marriage rate of Michigan increased or decreased during the past twenty years? the answer given by the first method is, there has been an increase of .61, or about 7½ per cent; the answer of the second method is, there has been practically no change, a decrease of .04 or .3 per cent; while the answer of the last and most accurate method is, there has been a decrease of 3.4, or about 9⅓ per cent. At first glance these discrepant results may seem puzzling and inexplicable, but they are easily reconciled. In the first place the proportion of children in Michigan has been decreasing, and the proportion of persons over fifteen increasing. In 1870 the per cent of persons over fifteen was 61.9; in 1880 it was 64.7; in 1884, 65.5; and in 1890, 66.8. The population of marriageable age has thus increased considerably faster than the total population, and while the marriages have increased somewhat faster than the total population, they have only just kept pace with the increase of population of marriageable age. But the number of unmarried persons over fifteen including the widowed and divorced has increased with yet greater rapidity. In 1874, of the population over

fifteen, 38.6 per cent were unmarried; in 1884 there were 39.2 per cent unmarried, and in 1890 the percentage was 40.1. So that the number of marriages has failed to keep pace with the number of marriageable persons, and hence the last column shows a decrease. We may conclude, then, that the marriage rate of Michigan has decreased about 9 per cent between 1870 and 1890.

The effect of the hard times in decreasing the marriage rate may easily be traced in the decline from 1874 to 1877. The depression apparently affected a manufacturing state like Massachusetts earlier and more powerfully than it did an agricultural state like Michigan, for in Massachusetts the sharp decline began in 1874, the year in which Michigan reached its maximum, and continued till 1879, while in Michigan the lowest point was reached two years earlier. In Massachusetts the total fall was 29 per cent of the maximum rate, while in Michigan it was only 13 per cent, less than one-half as great. In 1885 a second minimum, also probably due to business depression, may be noted in Michigan as in Massachusetts and elsewhere.

It has been shown that the marriage rate of Michigan has decreased. This may be due merely to postponement of marriage to a later period of life rather than greater abstinence from it, and Mr. Rippey, in the editorial already cited, is inclined to explain the decrease in that way. He points out that between 1874 and 1890 the average age of grooms increased .78 of a year (from 28.07 to 28.85), and the average age of brides increased 3.11 years (from 21.19 to 24.30). One may be inclined to accept the statement that marriage is contracted later in life, and yet question whether the above facts, apparently conclusive as they are, prove it or give any measure of the postponement of marriage. For in obtaining these averages all second and subsequent marriages have been included. The important question is, At what age is marriage contracted for the first time? But, it will be said in reply, the proportion of second or later marriages has probably

remained about the same, and so the error is a constant one. Quite the contrary. The average age of the citizens of Michigan has been increasing, and thus the proportion of widows and widowers has risen. For example, between 1874 and 1890 the total population increased 57 per cent, but the number of widows and divorced women meantime increased 88 per cent. It is impossible, therefore, to derive from the Michigan records any clue to the average age at which marriage is first entered by either sex, and *a fortiori* any measure of the postponement of marriage which has almost certainly been in progress. It is much to be desired that the state authorities would follow the example of Massachusetts and Rhode Island, and give us tables in which marriages are grouped into those between bachelors and maids, bachelors and widows or divorced women, widowers or divorced men and maids, widowers or divorced men and widows or divorced women, with distinction of age groups for each sex in each case.

The above are all the conclusions that I have been able to derive from a study of the rates of marriage in Michigan year by year. Before closing, however, it may be interesting and valuable to institute some comparisons between the proportion of persons of each sex married in Michigan and in other regions. The facts in regard to Michigan have been kindly furnished me, in advance of their publication, by Dr. J. S. Billings, in charge of this division of the Eleventh Census. The only state giving approximately comparative facts in its own census is Rhode Island, and for further comparison I have included England and Wales.

NUMBER OF MARRIED MEN TO 1000 OF EACH AGE GROUP.

Ages.	Michigan, 1890.	Rhode Island, 1885.	England and Wales, 1881.
15-19	2	7	5
20-24	159	174	221
25-34	624	588	669
35-44	836	800	826
45-54	870	?	849
55-64	855	?	779
65+	727	?	587

The above should be read as follows: Among every thousand young men in Michigan, in 1890, between the ages of fifteen and twenty, two were married, etc. It appears from the table that the probability of a young man's marrying before he is twenty is over twice as great in England, and over three times as great in Rhode Island, as it is in Michigan. Between twenty and twenty-five, also, the likelihood of marriage among men is greater in England or Rhode Island than in Michigan. Between twenty-five and thirty-five there are more married men in Michigan than in Rhode Island, but fewer than in England, while after thirty-five the proportion of married men is greater in Michigan. One would naturally suppose that in a relatively new state like Michigan the means to support a family would be obtained earlier in life, and more easily than in densely settled communities, and, hence, that marriages would occur earlier, and in greater numbers. It seems probable, however, that the better economic conditions are more than counterbalanced during the earlier periods by the fact that women are still in a minority in Michigan, while in Rhode Island and Massachusetts they largely outnumber the men. The excess of men in Michigan in 1890 is shown by the following table: —

Persons of each Sex in 10,000 of each Age Group.

Ages.	Males in 10,000.	Females in 10,000.	Difference.
15-19	5,003	4,997	6
20-24	5,136	4,864	272
25-34	5,343	4,657	686
35-44	5,412	4,588	834
45-54	5,347	4,653	694
55-64	5,365	4,635	730
65+	5,420	4,580	840

If every woman in Michigan were to marry, and to marry a man of the same age group as herself, the number of men that would remain unmarried in 10,000 persons of each age group is indicated in the last column, and, although men do

marry women on the average several years younger, yet the result must be the same, and a man's likelihood of finding a wife be somewhat less in a state like Michigan than in one where the difference is on the other side, as it is in Rhode Island. If this explanation be correct, one would surmise that the combination of better economic conditions and the excess of men in Michigan would make the proportion of married women in that state considerably greater than in Rhode Island, or in England. The table below will show that the anticipation is in accordance with the facts.

NUMBER OF MARRIED WOMEN TO 1000 OF EACH AGE GROUP.

Ages.	Michigan, 1890.	Rhode Island, 1885.	England and Wales, 1881.
15-19	90	49	25
20-24	496	315	331
25-34	814	633	681
35-44	878	738	765
45-54	829	?	711
55-64	706	?	581
65+	422	?	326

From the above it appears that the likelihood of a girl's marrying before she is twenty is not far from twice as great in Michigan as in Rhode Island, and over three and a half times as great as in England. Between twenty and twenty-five about three women are married in Michigan for every two in Rhode Island or England, and for the later periods the proportion of women married exceeds that in England by from 15 to 30 per cent.

The same difference between Michigan and England may be brought out in another way by comparing, not the number of persons reported as married in the census, but the marriage rates for two years. Unfortunately, I cannot choose the same year, but am obliged to compare, as above, the figures for 1881 in England with those for 1890 here.

MARRIAGE RATE OF THE SEXES BY AGE GROUPS.

Ages.	Males.		Females.	
	Michigan, 1890.	England, 1881.	Michigan, 1890.	England, 1881.
15-19	3	5	62	22
20-24	82	93	154	122
25-34	120	110	123	84
35-44	75	63	60	33
45-54	53	38	30	14
55-64	40	22	10	5
65+	13	5	2	0.6

Here again much the same results appear. Up to twenty-five, men in England marry in larger proportions than in Michigan, but after that age the rate in Michigan is greater. The difference shown in the period between twenty-five and thirty-five, by the two methods, may be due either to the difference in the years compared or to accidental causes. On the other hand, the marriage rate of women in Michigan is uniformly and considerably higher than it is in England. In the light of these facts a social reformer, if animated by the belief that marriage should be the goal of a woman's ambition, might apply the doctrine of Horace Greeley to the fairer sex, and urge them to emigrate westward if they would cure their social ills. But a scientific student knows that the tendency of almost every migration to a new country is to bring about a partial and temporary separation of the sexes, and that the interplay of natural and social forces gradually restores an approximate equality of numbers.

CORNELL UNIVERSITY.

THE CLASSIFICATION OF OCCUPATIONS FOR CENSUS PURPOSES.

By Henry Gannett, A.M.

There is probably no subject connected with the census concerning which there seems to be less clearness of purpose or plan than the classification of occupations. What the purpose of the statistics of occupations is, or the character of the information which such statistics are designed to present, is not made clear by any existing classifications.

It seems to be manifest that one of the primary objects of such a classification, if not the primary one, should be to enable us to group the inhabitants of a country in accordance with their station in life. In order to effect this the primary divisions should be made upon a basis of intelligence and skill, separating those engaged in head work from those engaged in hand work, and subdividing into classes those engaged in head work and hand work of a different order. Of course it is understood that the two classes merge into one another, and that it is impossible to draw hard and-fast lines between them, but they are sufficiently distinct to enable a fair classification on this basis to be made. At the head stand the learned professions, followed by teachers, by the financial and commercial classes,— bankers, brokers, etc.,— then traders and dealers, the class of clerks and salesmen, farmers, skilled labor, including what are commonly known as the trades, operatives in manufactures of all sorts, and, finally, unskilled labor.

This list forms a basis, in the shape of a sliding scale from the top to the bottom of the social ladder, upon which, by subdivision, can be built up a classification as limited or as extensive as may be desired. The basis for such a subdivision should be the environment of the wage earner and what he does. Each profession may be represented separately.

The class of teachers may be subdivided according to the grade of schools in which they teach, that is, in colleges, high schools, or primary schools, but whether they teach in public or private schools has little to do with the case. The financial and commercial classes may be grouped as bank officials, insurance officials, officials of transportation, manufacturing concerns, etc., etc., although such details have little meaning. Similarly, traders and dealers may be subdivided according to the articles in which they deal, but that classification, except in a few cases, is of trifling importance. The class designated as clerks and salesmen includes a large miscellaneous group of subordinates, engaged mainly in trade and transportation and in the government service, which may with profit be subdivided into classes, such as accountants, copyists, salesmen, travelling salesmen, ticket agents, etc. The next, the farming class, may be subdivided into farmers proper, stock raisers, market gardeners, florists, etc.

Skilled labor may be subdivided into the several trades.

The next class, operatives, requires more than a passing mention. It is commonly supposed that, owing to the increasing variety of demands of our modern civilization, the occupations of the laboring classes are becoming correspondingly increased in the number and variety, that each new thing with which we are supplied involves the creation of a new trade for the purpose of making it. This is not the case. Formerly everything was made by hand, each article was made entirely by one person, and he was skilled in its manufacture. This knowledge and skill constituted his trade. Now machinery has taken the place of this manual skill, and to a large extent the skilled trades have been supplanted by a large and ever increasing class of persons who tend machines. They only press the button, the machine does the rest. These machine tenders or operatives form the bulk of the employes in all kinds of manufacturing establishments. It is probably a larger class numerically than any other, excepting that of unskilled labor. It may be subdivided in

accordance with the conditions under which the operatives work. Thus they may be grouped as operatives in smelting works, metal and cutlery works, shoe factories, textile mills, wood-working establishments, etc.

Finally, we come to unskilled labor. This consists, first, of agricultural laborers; second, of other outdoor laborers, such as those employed on railroads, sewers, etc.; third, those employed in manufactures (these last may be classified in a manner similar to operatives); and, fourth, domestic servants.

Comparing the above classification with the one proposed by M. Bertillon, a translation of which was published in the journal of this Association last September, it is seen that the ideas upon which they rest are utterly dissimilar. That of M. Bertillon depends, so far as his main classes, A and B, are concerned, not upon what a man's occupation is, upon what he does, but upon what he makes. This will be recognized at once by all who have looked over his paper, and the fallacy of his criterion as a basis of classification is quite as apparent as the fact of its use. Of what possible interest is it in this connection to know, collectively, the number of persons, including proprietors, clerks, metal workers, wood workers, varnishers, etc., who contribute to the manufacture of agricultural implements, of sewing machines, of pianos, or of bicycles? Such classifications as his give us little information regarding occupations, however much they may inform us regarding other subjects.

This error of confusing occupation with product is not confined to this classification of M. Bertillon. It runs, to a greater or less extent, through all classifications of occupations with which I am acquainted. It seems to me to be a survival from the time when one's occupation bore close relation to the product; when manufactured articles were made by hand, and a single person completed the article. At that time, half a century ago, there was a certain degree of propriety in using the product as a criterion of the occupation, but that time has long since passed away.

NATIVITY AND OCCUPATION OF MEMBERS OF THE MASSACHUSETTS LEGISLATURE.*

By F. H. Howland, S.B.

1. Nativity.

In view of the great change which is taking place in the character of the population of the country as to its immediate origin, an inquiry is undertaken in the following paper to determine how far citizens of foreign birth have engaged in public political life in the State of Massachusetts during the past half century. The material from which the statistics are gathered may be found in the State Library in Boston. The years 1847–64 are covered by *Poole's Register;* data for 1866–79 in the *Journal* of the House of Representatives; and for the remaining years there is abundant material in bound extracts from the Boston *Journal.* There is no record for the years previous to 1847 save in unpublished manuscripts, nor for the year 1865.

In the period under observation, 1847–91, there has been but one House, that of 1848, which consisted entirely of native-born members. The number of foreign-born representatives during this period ranged from one to twenty-six, the maximum being reached in 1881, 1883, and 1884. In 1891, the last year of the term under consideration, there were 19 of foreign birth out of a total representation of 240.

The Senate of Massachusetts is composed of forty members. There have been eleven years since 1846 when there were no foreign-born citizens in this body; seventeen, when there were but two; and one year, 1891, when the maximum number, five, was reached.

The maximum percentage of foreign-born in the House is

* Abstract of a thesis submitted by F. H. Howland for graduation at the Massachusetts Institute of Technology, and printed in *Technology Quarterly,* Vol. VI, No. 3, October, 1893. Davis R. Dewey.

10.8 in the years already referred to, 1881, 1883, and 1884; and in the Senate 12.5 in 1891. As might be presumed, the larger part of foreign-born members of the General Court, as the Massachusetts Legislature is termed, were born in England, Ireland, Scotland, and British colonies. Ireland has furnished by far the largest number, 274, or 55 per cent, of the foreign-born in the House, and 29 in the Senate. England comes next, with a total of 92 in the House and 12 in the Senate. Canada is credited with 58 in the House and 12 in the Senate; Scotland with 47 in the House and 6 in the Senate; and the British West Indies, Isle of Jersey, and Isle of Man, 6 in the House and one in the Senate.

Germany has sent fifteen; Holand, two; and France, Turkey, Switzerland, one each, to the House.

The changes which have taken place will be understood more clearly if the period 1846–91 be broken up into decades. This is done in the following table: —

HOUSE OF REPRESENTATIVES.

Years.	Total Number of Members in House Varied.	Average Number Returned Annually, Born in						
		Ireland.	England.	Canada.	Scotland.	Other English Possessions.	Other Foreign Countries.	Total.
1847-50	253-297	.0	.5	.1	.3	.1	.0	1.0
1851-60	240-401	.9	1.0	.5	.5	.1	.0	3.0
1861-70	240	3.8	1.4	.4	.8	.1	.2	6.7
1871-80	239-240	9.6	2.8	1.6	.6	.0	.6	15.2
1881-90	237-240	11.9	3.3	3.0	2.3	.3	1.0	21.8
1891	239	12.0	2.0	2.0	2.0	.0	2.0	20.0

Of course it must not be supposed that there were 274 different individuals born in foreign countries who during this period gained the distinction of a position in the General Court. The same person may have been returned, and probably was returned, several times, and some of those who are recorded as members of the House of Representatives are found in the list of the Senate. But this does not affect the

statistics for purposes of comparison, as the same fact is true of the native-born members.

The Senate statistics do not vary much from the above in the tendencies indicated. During the same periods, out of a total membership of forty, the foreign born have been as follows: —

SENATE.

Years.	Total Members.	Foreign Born.
1847-50	40	.1
1851-60	40	..
1861-70	40	1.5
1871-80	40	1.2
1881-90	40	2.1
1891	40	5.0

It will be observed that the great increase of foreign-born representatives took place in the decade 1871–80; and since then that the ratio has been quite constant. A further investigation showed that by far the larger number of the foreign born were returned for Boston districts, and had their residence in that city.

For a portion of the period over which the inquiry extended it was possible from the documents at hand to tabulate the political faith of the foreign-born members. In the years 1880–91, of the 146 representatives of Irish birth only 9 are credited to the Republican party, while 135 stand in the Democratic column. One is entered as a Greenbacker, and another in the People's party.

Of the 40 entries of English birth, however, 24 are in the Republican and 16 in the Democratic column. But about one-third of the members from Canada, Scotland, and other English possessions are enrolled as Republicans, the total being 18 Republicans and 39 Democrats. In the Senate there are 29 foreign-born entries in the years 1880–91, and of these 21 belong to the Democratic side.

To sum up, then: About one-tenth of the members of the

Legislature today are foreign born; of this fractional body Ireland furnishes a little more than half. Generally, the Irish contingent will be found in the Democratic column, while the other foreign elements are more evenly divided. These statistics bear out common impressions in regard to the constitution of our legislative body, but it would be interesting to have a similar inquiry made for a Western State, as, for example, Wisconsin, which has a large Teutonic and Scandinavian population.

2. Occupation.

Records of the occupations of the members of the Legislature are less satisfactory than those of nativity. The principal titles under which members are entered are those of lawyers, farmers, manufacturers, and merchants. Other occupations, as clergymen, machinists, editors, physicians, etc., appear in the returns, but there is no uniformity of listing from year to year. It is thus impossible to make comparison which will include all the members; but in spite of this necessary defect it is possible to note certain general tendencies. Using the same periods of time as in the analysis of nativity, we find the following occupations entered for members of the Senate. The figures are averages derived from the several years in each period.

OCCUPATIONS OF MEMBERS IN SENATE.

	Lawyers.	Farmers.	Manufacturers.	Merchants.
1847-50	10.7	8.7	7.7	5.5
1850-60	8.4	5.6	4.5	6.7
1861-70	10.4	3.3	7.7	5.4
1870-80	10.2	2.5	8.1	5.6
1880-90	9.8	2.2	6.2	3.1

As the Senate generally has had 40 members throughout the period, it will be observed that while in the earlier decades the above categories would include two-thirds of the member-

ship, in the last decade not more than one-half were thus accounted for. There were more who really belong in the mercantile class than appear above, the deficiency being due to a refinement of recording which did not formerly prevail. Lawyers have held their own, as well as the mercantile class, while the farmers have steadily declined in influence.

In the House we find the same tendencies. In the membership of this body until 1855 the farmers had from one-fourth to one-third of the members; but latterly only very rarely in a House of 240 members are there 30 farmers. Lawyers have increased slightly in numbers, and the same is true of manufacturers and merchants. There was formerly a substantial group of clergymen, but now they appear only occasionally. In the period 1847–50 there was, for example, an average of 9.5 clergymen; 1851–60, 7.8; 1861–70, 8.5; 1871–80, 3.5; 1881–90, 1.9.

The following table shows the average number of farmers and lawyers, it not being possible to classify accurately other occupations.

HOUSE OF REPRESENTATIVES.

	Total Members in House.	Farmers.	Lawyers.
1847-50	253-297	72.0	28.5
1851-60	240	82.6	26.7
1861-70	240	37.7	24.5
1871-80	239-240	26.8	27.0
1881-90	237-240	20.8	34.2

THE SEX RELATION IN SUICIDE.

By Frederick L. Hoffman.

Some years ago I commenced the collection of statistics of suicide, for several states and cities of this country, for the purpose of an article to be published in the *Arena*.* Among the tables which I compiled at the time were several which could not be made use of in the paper as subsequently published. The most important of these were those relating to the proportion of the sexes, which are given below for the purpose of placing at the command of the student and writer on moral statistics the facts as they pertain to certain states and cities of this country. As is well known, there are only a few states of the forty-four which comprise this nation that maintain efficient bureaus of registration. Only those which publish the most trustworthy statistics have been included in the following tables. Most of our large cities, through their Health Department, collect and publish vital statistics, but many do not distinguish the sex of decedent, and these of course have had to be left out of the collection of ratios in the tables below. Among those which publish valuable statistics without stating the sex of decedents may be mentioned the city of Chicago, from which city I have returns for the period 1881–93, with an aggregate total of 2026 cases. It is very unfortunate that this should be the case. The first table presents the returns for eight American states, with an aggregate total of nearly 10,000 cases. I give in each instance, first, the period for which the total number is reported; second, the aggregate total of cases; third, the number of men; fourth, the number of women; fifth, the ratio of men to total suicides, and, finally, the ratio of women to suicides. Unless otherwise stated, when reference

* Suicide and Modern Civilization, *Arena*, Boston, May, 1893.

is made to sex relation in the aggregate total, the proportion of women to the total number is referred to.

TABLE I.

SEX RELATION IN SUICIDE IN EIGHT AMERICAN STATES.

States.	Period of Years.	Total Suicides.	Males.	Females.	Per Cent Males.	Per Cent Females.
Massachusetts.....	1851-92	5,141	3,977	1,164	77.4	22.6
Vermont.....	1866-92	737	555	182	75.3	24.7
Rhode Island.....	1865-92	548	422	126	77.0	23.0
Connecticut.....	1886-92	631	525	106	83.2	16.8
New Hampshire....	1886-91	202	162	40	80.2	19.8
Michigan.....	1876-91	1,280	980	300	76.6	23.4
Minnesota.....	1888-90	358	288	70	80.0	20.0
California.....	1885-92	1,011	858	153	84.9	15.1
Total average.....		9,908	7,767	2,141	78.4	21.6

According to this table 21.6 per cent of all suicides reported were women. The highest ratio recorded is for Vermont, and the lowest for California. In view of the fact that Vermont is a strictly rural state, it will be difficult to explain the high rate of female suicides for that state, on the almost universally accepted theory, that density of population and the presence of large cities are conducive to bring about an equality between the sexes in suicide and crime.* Rhode Island is the most densely populated state in the Union (318.44 per square mile), yet the proportion of female suicides is several per cent below that of Vermont. Massachusetts stands next to Rhode Island, with a density of 278.48 per square mile, yet the proportion of female suicides is only 22.6, while rural Vermont and Michigan, with a density of only 36.39 and 36.46 per square mile, respectively, show a higher rate than either Massachusetts and Rhode Island. As regards the influence of the proportion of the sexes in the general population, both Vermont and Michigan contain proportionally less women than men, while in Massachusetts and Rhode Island the females exceed the males by several per

* O'Dea, *Suicide*, p. 152.

cent. To be exact, the proportion of women to 100,000 men is as follows: Vermont, 96,320; Michigan, 91,787; Massachusetts, 105,840; and Rhode Island, 105,628. If, therefore, the actual number were based on the respective population the result would be still more unfavorable to the two rural states used for comparison.

The next table contains the returns for 23 representative American cities, with an aggregate total of 10,138 cases.

TABLE II.

SUICIDES ACCORDING TO SEX IN 23 AMERICAN CITIES.

Cities.	Period of Years.	Total Suicides.	Males.	Females.	Per Cent Males.	Per Cent Females.
New York, N. Y.	1869-91	4,073	3,239	834	79.5	20.5
Philadelphia, Pa.	1866-92	1,786	1,455	331	81.4	18.6
Brooklyn, N. Y.	1889-92	338	262	76	77.5	22.5
St. Louis, Mo.	1887-92	583	447	136	76.6	23.4
Boston, Mass.	1871-93	974	760	214	78.0	22.0
Baltimore, Md.	1875-92	489	399	90	81.5	18.5
San Francisco, Cal.	1881-93	618	548	70	88.6	11.3
Cincinnati, O.	1890-92	159	122	37	76.7	23.3
Cleveland, O.	1891-93	102	78	24	76.4	23.6
Buffalo, N. Y.	1886	12	9	3	75.0	25.0
Pittsburg, Pa.	1890-92	64	50	14	78.1	21.9
Washington, D. C.	1876-92	255	208	47	81.5	18.4
Newark, N. J.	1888-89	52	40	12	76.9	23.1
Hudson Co., N. J.	1885-87	78	65	13	83.3	16.7
Providence, R. I.	1856-92	276	207	69	75.0	25.0
Richmond, Va.	1889-93	14	11	3	78.5	21.5
New Haven, Conn.	1880-92	103	79	24	76.7	23.3
Lowell, Mass.	1888-89	14	11	3	78.5	21.5
Dayton, O.	1876-92	64	51	13	79.6	20.4
Reading, Pa.	1891-93	18	14	4	77.7	22.3
Lynn, Mass.	1889-91	8	6	2	75.0	25.0
Hartford, Conn.	1890-93	25	20	5	80.0	20.0
San Antonio, Tex.	1889-92	33	26	7	78.7	21.3
Total average.	.....	10,138	8,107	2,031	80.0	20.0

The highest ratios reported are for Providence, R. I., Buffalo, N. Y., and Lynn, Mass. The lowest ratio reported is for San Francisco, Cal. The ratio for Providence is slightly above that for the state of Rhode Island, while the low rate for San Francisco is in harmony with the low rate for the

state of California. It is somewhat curious that the three cities, Baltimore, Philadelphia, and Washington, should show such a similarity in their proportion of female to total suicides. Out of the total of 23 cities only five show ratios below 20 per cent, while in no instance is a higher rate than 25 per cent reported. The average ratio for all cities is 20 per cent, a ratio, however, which is strongly affected by the long period for New York city and Philadelphia and Providence, and the short period for the other 20 cities. In most cases the female population of our large cities exceed the male population by several per cent, which, as in the case of Rhode Island and Massachusetts, would make the actual ratio still lower for women and higher for men. I have attempted to present as complete a return as possible, but, due to the fact that many cities issue reports which could not be utilized, and, further, that for many cities the returns for long periods could not be obtained, I have not been able to make this table as complete as would have been desirable.

For the purpose of comparison with European data, I have compiled from the work of Morselli the following table,

TABLE III.

THE SEX RELATION IN SUICIDE IN EUROPEAN STATES (AFTER MORSELLI).

States.	Period of Years.	Total Suicides.	Males.	Females.	Per Cent Males.	Per Cent Females.
Sweden	1831-74	10,677	8,407	2,270	78.7	21.3
Norway	1856-73	2,475	1,892	583	76.4	23.6
Denmark	1845-76	10,397	7,908	2,489	76.1	23.9
England and Wales	1863-90	51,186	38,133	13,053	74.5	25.5
Belgium	1836-76	5,722	4,702	1,020	82.2	17.8
Prussia	1816-76	114,364	92,970	21,394	81.3	18.7
Bavaria	1866-76	4,912	3,947	965	80.4	19.6
Saxony	1847-76	17,677	14,901	3,586	79.7	20.3
France	1836-76	140,180	108,066	32,114	77.1	22.9
Austria	1851-77	16,560	13,607	2,953	82.2	17.8
Italy	1864-77	11,671	9,319	2,352	79.8	20.2
Total and average		406,657	318,430	88,227	78.4	21.6

which gives the proportion of the sexes in suicide for 11 European states.* Some additions have been made in the

* Morselli, *Suicide*, p. 196. English edition.

case of England and Wales, which bring the returns for that country down to 1890.

The returns are for 11 European states, with an aggregate total of over 406,000 cases, of which 21.6 per cent were women. I know of no instance in which the so-called "law of large numbers" has a more complete justification than in this remarkable instance. From a comparison of the sex relation in the 10,138 cases of eight American states with the 406,657 cases of suicide in Europe, it will be found that the percentage of females for both sections of the world is exactly the same, namely, 21.6 per cent.

To complete my statement of sex relation to suicide I will add a table for Canada and Australia, with a total of some 1200 cases for only short periods of time. The data have been obtained from the Census of Canada, the Report of the Registrar-General for the Province of Ontario, the Statistical Register of New South Wales for 1892, and the Statistics of Tasmania for 1892.

TABLE IV.

SEX RELATION IN SUICIDE IN CANADA AND AUSTRALIA.

	Period of Years.	Total Suicides.	Males.	Females.	Per Cent Males.	Per Cent Females.
Province of Ontario..	1888-90	179	140	39	78.2	21.8
Province of Quebec*..	1890	16	14	2	87.5	12.5
Colony of New South Wales†.....	1883-92	1,054	870	184	82.5	17.5
Tasmania‡.....	1892	59	54	5	91.5	8.5

* *Census of Canada, 1891*, Vol. II, p. 132. † *Statistical Register for New South Wales, 1894*, p. 557. ‡ *Statistics of Tasmania, 1892.*

The ratio for Ontario shows a close correspondence to the ratio for Massachusetts, while the low ratio of Quebec must be accounted for as being due to the predominating Catholic element of the population.* The low ratio for New South Wales corresponds to the ratio for California, and in part can

* According to the last Census the Roman Catholic element formed 87 per cent of the total population.

be accounted for as being due to an excess of males and a large Chinese element of the population, aside from local economic causes, to which in part is due the high rate of suicide prevailing in California and Australia.*

The data thus far presented bear out the well-known and often-repeated law, "that in all civilized countries the proportion of the sexes in suicide is as one woman to three or four men." "It is true," as Morselli adds, "in some statistical series a return, sometimes large, sometimes smaller, is obtained, but the divergence is hardly of one and at the most of two units beyond these limitations."† The tables for the American states and cities verify the figures and assertions of Morselli, and it only remains for me to add a few statistics of the sex relation according to certain periods in reply to the open question whether suicide has increased in recent years more among the members of one than among the members of the other sex.

Mr. Havelock Ellis, in his recent work on "Man and Woman," has called attention to the fact that in most countries there appears to be a tendency for the proportion of female suicides to decrease, or, as he explains it, "one should rather say women have taken a smaller share than men in the modern development of suicide."‡ The statistics presented in the two tables below would appear on the whole to support this tendency, noted by Legoyt, Morselli, Ellis, and others. The first table shows the sex proportion for five American states and England and Wales for a number of five-year periods. Most of the ratios for New England states have been compiled from Dr. D. R. Dewey's article on "Suicide in New England."§

* In New South Wales the proportion of the sexes in the aggregate population is 54.34 per cent males to 45.66 per cent females.

† Morselli, *Suicide*, p. 189.

‡ *Man and Woman*, by Havelock Ellis, p. 331.

§ *Journal of the American Statistical Association*, Vol. III.

TABLE V.

SHOWING THE RELATIVE PROPORTION OF FEMALE SUICIDE BY QUINQUENNIAL PERIODS.

States.	1851-55.	1856-60.	1861-65.	1866-70.	1871-75.	1876-80.	1881-85.	1886-90.
Massachusetts	29.6	24.2	25.2	23.0	21.0	18.3	22.8	21.8
Rhode Island	....	....	....	24.5	31.5	26.2	20.2	9.7
Vermont	....	....	....	19.4	21.6	26.7	28.5	27.2
Connecticut*	....	....	....	....	....	26.1	....	17.6
Michigan	....	....	....	....	....	26.7	21.5	20.6
England and Wales†	....	28.2	26.7	25.8	25.9	24.9	25.0	24.0

* For 1878-84 and 1886-91. † For 1858-60, 1863-67, 1868-71, 1872-76 (after Morselli).

TABLE VI.

SHOWING THE SEX PROPORTION IN SUICIDE BY FIVE-YEAR PERIODS FOR AMERICAN CITIES.

City.	1871-75.	1876-80.	1881-85.	1886-90.
New York	23.9	19.2	18.5	20.3
Philadelphia	16.0	15.8	18.7	22.1
Boston	22.3	17.7	22.2	25.3
Baltimore	....	21.6	15.7	11.4
New Haven	....	....	28.6	23.3
Providence	26.9	32.4	25.8	5.1
Dayton	....	23.5	21.0	11.8
Washington	....	22.7	20.8	13.5

For Massachusetts and England and Wales the periods covered are of almost the same length. The decrease has been most marked in Massachusetts, which in 1851–55 had a ratio of 29.6 per cent against a present ratio of only 21.8 per cent. Vermont shows a considerable increase, from a very favorable ratio in 1866–70 to the highest on record for the period 1886–90. The ratio for Rhode Island, which, according to Table I is 23 per cent for the period 1865–92, shows the abnormally low ratio of 9.7 per cent, for which I offer no explanation. With the exception of Vermont, there has therefore been a decrease in the proportion of women suicides to the aggregate total. On examination of Table VI this will also be found to be true for most of the cities included in this table. Boston and Philadelphia are the only two

cities which show an increase in the ratio of female suicide, while Providence, R. I., corresponding to the cities for the state in Table V, makes returns for the abnormal ratio of only 5.1 per cent. The statistics for Rhode Island and Providence are perhaps the most trustworthy and complete in the country, and the low ratio cannot be accounted for by throwing doubt on the accuracy of the returns for the period of 1886–90. Unknown causes, for which I offer no explanation, must have produced this abnormal condition.

On the basis of the above table it would therefore appear that the sex relation in suicide is about the same for this country as for the states of Europe, and that, notwithstanding the general increase in suicide, there has been manifest a tendency towards a decrease in the relative proportion of suicides of women to total suicides. This fact, taken in connection with the well-known change in the economic and social condition of women in this country, especially in the New England states, would make it appear that the causes that operate to produce an increase in the general rate of suicide affect one sex in a different manner and to a different degree than the other so-called weaker sex. But my aim in this paper has not been to assign or explain cause, but simply to present the facts as they pertain to certain states and cities of the United States.

THE GROWTH OF ST. LOUIS CHILDREN.

By William Townsend Porter.

In January, February, and March, 1892, 33,500 boys and girls in the St. Louis public schools were measured by me and my assistants. The following data were collected: Name of pupil, place of birth, age at nearest birthday, birthplace of father, birthplace of mother, occupation of father, number of brothers and sisters living and dead, residence of pupil, color of hair and eyes, height standing, height sitting, span of arms, strength of squeeze with right and left hand, girth of chest at full inspiration and full expiration, weight, acuteness of vision in right and left eyes, length of head, width of head, height of face from root of nose to point of chin, width of face, height of face from hair line to point of chin, and, finally, the school grade of the pupil.

The information thus secured has furnished material for the following publications: (1) *The Physical Basis of Precocity and Dullness*, Transactions of the Academy of Science of St. Louis, Vol. VI, No. 7, issued March 21, 1893; (2) *The Relation between the Growth of Children and their Deviation from the Physical Type of their Sex and Age*, Transactions of the Academy of Science of St. Louis, Vol. VI, No. 10, issued November 14, 1893; (3) *Untersuchungen der Schulkinder in Bezug auf die physischen Grundlagen ihrer geistigen Entwickelung*, Verhandlungen der Berliner Anthropologischen Gesellschaft, Sitzung vom 15 Juli, 1893, Virchow's Zeitschrift für Ethnologie; (4) *The Growth of St. Louis Children*, Transactions of the Academy of Science of St. Louis, Vol. VI, No. 12, issued April 14, 1894. Three other papers are in preparation: *The Growth of Large and Small Children; Acuteness of Vision in the St. Louis Public Schools;* and a statement of the normal weights for children of different heights.

I purpose in this paper to give a brief account of some of the results of these studies.

It is a matter of much interest to determine whether measurements made for the most part by teachers in the public schools are sufficiently accurate to furnish reliable physical standards. The statistician answers this question by comparing the observed distribution of the heights or weights, etc., at any age with the distribution of an equal number of observations according to the theory of probabilities. A glance at the theoretical and the observed distribution of the heights of 2192 girls, aged 8 (Table No. 7 in *The Growth of St. Louis Children*), shows a satisfactory agreement between them. This indicates that the number of measurements is so large that deviations to one side of the true height are fairly well compensated by deviations to the other side. In such a case the median value of the series is typical of the series. Thus, in this investigation measurements collected by comparatively unskilled observers were found to satisfy the requirements of theory.

The objection sometimes made that the errors of observation materially affect the truth of the values obtained is of little weight, partly because such errors are "accidental" and compensate each other, and partly because a deviation from the middle value due to an uncompensated error in measurement forms, as a rule, an inconsiderable part of that greater deviation which expresses the physiological difference between the individual and the type of his age and class. "Accidental" errors of observation need not give concern in measurements of great numbers of school children. Nor need there be much fear of constant errors of observation, provided the collection of material is made by many persons, and with a good number of each sort of measuring instrument.

The degree of deviation of individual measurements from the median value of an anthropometrical series is measured by the Probable Deviation, that value which, in the words of Lexis, is as often exceeded as attained. Hence, if Quetelet's

theory is true, the probable deviation is a measure of the degree of deviation of individuals from their physical type. The probable deviation contains the Error of Observation as well as the Physiological Difference of the individual from the type. The Error of Observation, in a large series of measurements, is insignificant. The probable deviation may therefore, without any error of importance, be considered as the physiological difference between the individual and the type.

The comparison of the probable deviations from the average height standing of the school children in the Freiburg School District (measured by Geissler and Uhlitzsch) and the St. Louis school children reveals a difference of only a few millimetres, although St. Louis children are taller than Freiburg children. It follows that the physiological difference between individual school children and the physical type of their sex and age is essentially the same where the differences between the children compared are not greater than those existing between the St. Louis and the Freiburg children.

The probable deviation at different ages is found to vary with the quickness of growth as measured by the relative annual increase of average height, weight, etc. Hence, the physiological difference between the individual children in an anthropometrical series and the physical type of the series is directly related to the quickness of growth.

It is much disputed whether median or average (arithmetical mean) should be employed as the type value. The difference between the median and the average values in this investigation is relatively small, indicating that the median value, which is obtained with comparatively little labor, may be used in place of the average, where the material is as large, and of the same nature, as that analyzed by me.

It is pointed out that the comparisons now often made between the type-children of the schools of different cities and countries cannot be justified, unless it is shown that the school populations from which these types are drawn are

sufficiently alike to be rightly comparable. Information is given concerning occupation of parents of St. Louis children.

A comparison of the weights of the daughters of manual tradesmen with the weights of the daughters of professional men and merchants teaches that the latter are very little heavier than the daughters of manual tradesmen until the period of prepubertal acceleration; and that the weight of girls is much more influenced by the material prosperity, or social status, of parents during and immediately after the period of prepubertal acceleration than in the earlier years of growth.

The nationality of the children should be considered in an anthropometrical enquiry. The weights of children of German parentage are compared with those of American parentage. The difference between the two is inconsiderable.

When the curves of growth in weight, height standing, height sitting, span of arms, and girth of chest are drawn on the same system of co-ordinates, the attention of the observer is arrested by the difference in the development of girls and boys during the period of prepubertal acceleration. Girls enter this time of rapid growth at age 11 or 12, two years earlier than boys, and during several years are larger than boys of the same age. The ages at which girls begin to be larger than boys are nearly the same in all five dimensions named above, and a similar correspondence is seen in the age at which girls cease to be larger than boys. The sexual difference just noted is not present in expansion of chest, or in strength of squeeze, or in any head or face measurement, except height of face from hair-line to point of chin. Boys have therefore a larger expansion of the chest, greater strength of squeeze, and greater length and width of head, and height and width of face than girls throughout their period of growth.

The duration of the period during which girls are larger than boys in weight, height standing, height sitting, span of arms, and girth of chest is shortest in span of arms, and is

considerably longer in height sitting than in any other dimension.

Big girls begin to be larger than big boys at an earlier age than that at which small girls begin to exceed small boys. The period in which small girls are larger than small boys is longer than that in which big girls are larger than big boys.

The absolute annual increase of height standing, weight, span of arms, height sitting, girth of chest, and strength of squeeze is greatest in girls at age 13, and in boys at age 15, nearest birthday. The relative annual increase (increase at any year divided by the average value at that year) gives a truer idea of growth than the absolute annual increase, because the latter value is entangled with the size of the individual measured. The absolute increase is commonly greater in a big boy than in a small boy, and yet the rate of growth may be the same. The relative annual increase is free of such errors. The relative annual increase in strength of squeeze, weight, height standing, height sitting, span of arms, and girth of chest is treated in Chapter VII of *The Growth of St. Louis Children.*

The ratio of span of arms, height sitting, chest girth, weight, strength of squeeze with right hand, and five head and face measurements to height standing is also given in Chapter VII. These relations are shown graphically in Plate XLV of *Growth of St. Louis Children*, height standing being expressed by an abscissa, and the percentage relation of the other dimensions to height displayed in curves. Of all these span of arms most closely approximates the height, the difference being less than one per cent of the latter from age 6 to 11, and scarcely more than two per cent in subsequent ages. The height sitting and the girth of chest run a parallel course, and are, moreover, nearly equal, the girth of chest being about two per cent less than the height sitting. They increase a little less rapidly than the height, showing a decline of about 4 per cent in thirteen years. Height sitting and chest girth are not far from half the height standing.

Far different is the development of weight and strength of squeeze. These increase much more rapidly than height, for at age 6 the height stands to weight in the ratio of 100 to 18, and to strength of squeeze as 100 to 6, while at age 16 these ratios are 100 to 34 and 100 to about 16, respectively. The parallelism in the development of weight and strength of squeeze is interesting. The dimensions of the head and face increase somewhat less rapidly than the height.

In Volume VI, No. 7, of the *Transactions of the Academy of Science of St. Louis*, issued March 21, 1893, I demonstrated that children who possess more than the ordinary power of mental labor, as measured by their progress in their studies, are heavier, taller, and larger in girth of chest and in width of head than their less gifted companions of the same age. A more extended statement of these observations was presented to the Berliner Gesellschaft für Anthropologie, Ethnologie, und Urgeschichte, July 15, 1893, and appears in *Virchow's Zeitschrift für Ethnologie*, under the title "Untersuchungen der Schulkinder in Bezug auf die physischen Grundlagen ihrer geistigen Entwickelung." In these papers the material was the total number of observations irrespective of the social condition of parents. An example, selected from Tables Nos. 2 and 4, pages 165 and 167, of *The Physical Basis of Precocity and Dullness*, will illustrate the result of the enquiry. Pupils aged 11 are found in Grades I, II, III, IV, V, and VI of the St. Louis Public Schools, as the following table shows. The 59 boys of Grade I, the lowest grade,

TABLE SHOWING MEDIAN WEIGHT OF BOYS AGED 11 DISTRIBUTED BY SCHOOL GRADE.

Grades.	Number of Boys Weighed.	Median Weight. Kilogrammes.
I	59	28.83
II	311	29.74
III	664	30.92
IV	546	31.43
V	123	32.41
VI	33	33.29

weigh less than the boys of Grade II, and these again are lighter than the boys in higher grades.

When children of the same age and, nearly as possible, of the same class of society are weighed, and the weights distributed by school grade, it is found that they follow the law established for the whole material irrespective of social condition. Tables are given in *Growth of St. Louis Children* of the weights of the daughters of manual tradesmen and of the daughters of professional men, distributed by school grade. The results of this study of the weights of girls from the same social class confirm the conclusion that successful pupils are larger than the unsuccessful.

The relation between the ability to succeed in school work and the rate of growth or yearly increase in size is treated in *The Physical Basis of Precocity and Dullness*, p. 176 *et seq.* It appears that the comparative rate of growth of dull, mediocre, and precocious children of the same sex is the same at all ages, from 7 to 16, inclusive. The data at hand were not sufficient to decide whether this law is true of other ages in the period of growth. It is further shown that the acceleration in weight preceding puberty takes place at the same age in dull, mediocre, and precocious children; and that the point in the period of accelerated development at which girls become heavier than boys is the same in the dull, the mediocre, and the precocious.

The following are among the data given in *Growth of St. Louis Children:* The median and average value of each series of observations; the probable deviation; the probable error of the average; median minus average value; relation of weight, span of arms, etc., etc., to height standing; the 5, 10, 20, 25, 30, 40, 50, 60, 70, 75, 80, 90, and 95 percentile grades; the absolute annual increase of the average; the absolute annual increase at various percentile grades; the relative annual increase; and several cranial indices.

REVIEWS AND NOTICES.

THE POPULATION OF PARIS.

Population de Paris; Remarques demographiques sur l'habitat urbain. By G. Lagneau.

In the *Bulletin de l'Academie de Medecin* for June 27 and July 28, 1893, M. G. Lagneau gives an interesting paper on the effects, as shown by vital statistics, of city life in Paris. France offers an excellent field for the study of demography, because of the almost unique phenomena which it presents. These phenomena, together with the effects of sedentary life, cramped quarters, poor air, etc., in Paris, are ably discussed in this valuable paper.

In the period from 1801 to 1891 the population of France increased from 26,930,756 to 38,343,142, or about one-half. During the same period the population of Paris increased from 547,756 to 2,447,957, or four and one-half times. Together with this increase of the population of Paris there was a slight increase in territory, due to the absorption of suburban towns. The density of population, which was 489 inhabitants per hectare in the 17th century, was reduced by these additions to 340 in 1856, and to 310 per hectare in 1891.

The urban population of France (*i. e.*, the joint population of all cities having more than 2000 inhabitants) increased from 8,646,743 in 1846 to 13,766,508 in 1886, while the population of all France increased from 35,400,486 to only 38,341,142 during the same period. From this it is apparent that the rural population must have decreased, as is shown more clearly by the following summary: —

PERCENTAGE OF TOTAL POPULATION OF FRANCE.

Year.	Urban Population.	Rural Population.
1846	24.42	75.58
1856	27.31	72.69
1866	30.46	69.54
1876	32.44	67.56
1886	35.95	64.05

According to this summary the urban population has increased from less than one-fourth of the total population of France to more than one-third, and the rural population has decreased from more than three-fourths to less than two-thirds.

The French population, if examined by ages, shows certain interesting facts. There is a great diminution in the native-born population from the time of birth to the age of one year. From this age on the diminution by ages should be more or less regular, provided that the population is not increased by immigration. The regular diminution, however, does not begin until the age of 30 years, because of the great numbers of foreigners, who are usually between the ages of 20 and 30 years. This fact is even more noticeable in Paris than it is in the entire Republic. In 1886 there were in Paris 171,594 souls between the ages of 15 and 20 years, 223,000 between the ages of 20 and 25, and 251,672 between the ages of 25 and 30. From this age the numbers diminish to 229,319 between 30 and 35, and to 153,429 between 45 and 50 years of age.

The female sex predominates in the population of Paris. Girls, who mature earlier than do boys, apparently migrate to Paris at an earlier age. In 1891, for example, there were 97,368 boys and 98,650 girls between the ages of 15 and 20 years. These figures increased to 98,004 boys and 132,980 girls between the ages of 20 and 24 years.

In regard to social state, the Parisian population may be summarized as follows: —

Girls under 15 years of age }	515,949
Boys " 18 " " " " }	
Unmarried persons, ...	717,198
Married persons, ...	970,715
Widowers and widows, ...	210,423
Divorced persons, ...	10,425

This summary shows that about one-half only of the adult population are married.

In 1886 the nativity of the Parisian population as compared with that of the Republic is as follows: —

	In each 100 Inhabitants	
	Of France.	Of Paris.
Native of community where enumerated.....	60.5	36.1
Native of the same department.....	23.5	3.2
Native of foreign lands or different community.....	16.0	60.7

All of these facts bear upon the causes of the present demographical position of Paris, which is partly shown by the following statistics: —

In 1891, in France, there were 23.69 births per 1000 inhabitants.
" " " Paris " " 25.02 " " " "

These figures, however, suggest erroneous conclusions, for the birth rate in Paris is, in reality, less than that of France, as a whole. It appears greater only because the proportion of adults in the child-bearing age is much greater than in France. For comparison of natal statistics we should employ only individuals between the ages of 15 and 60 years. Now, in France the proportion of births to 1000 of the inhabitants between the ages of 15 and 60 years is 39.37, whereas in Paris the proportion is only 34.39, or one birth to every 29.07 adults.

As regards illegitimacy France and Paris show quite different figures.

In 1890 in France there were 91.5 legitimate and 8.5 illegitimate in each 100 births. In 1891 in Paris there were 72.42 legitimate and 27.58 illegitimate in each 100 births.

Furthermore, in all of France in 1890 there were 2.84 births per marriage. In Paris in 1891 there were 1.93 births per marriage.

In France in 1886, 20 per cent of all families had no living children. In Paris in 1886, 32.3 per cent of all families had no living children.

In France in the period 1881–85 there were 45 still births per 1000 confinements. In Paris in 1891 there were 71.73 still births per 1000 confinements.

The army records show that not only is the birth rate lower in Paris than in France, but the quality also is poorer. M. Lagneau shows, for example, that the height of males and females in Paris is less than that of other inhabitants of France.

In France from 1881 to 1890 there were 20.71 deaths per 1000. In Paris from 1881 to 1890 there were 24.84 deaths per 1000.

In France 23.31 per cent of infants died before the age of one year. In Paris 29.32 per cent of infants died before the age of one year.

The average age of Parisians is 28 years and 19 days. This is 15 years less than the average age which M. Turquan finds for the

inhabitants of France. The mortality by ages may be shown by the following table: —

	Surviving from 10,000 Newly-Born Infants.
At birth,	10,000
At the age of 1 year,	7,068
" " " 5 years,	5,294
" " " 15 "	4,992
" " " 25 "	4,626
" " " 35 "	4,165
" " " 45 "	3,573
" " " 55 "	2,836
" " " 65 "	1,886
" " " 75 "	734
" " " 80 "	265

It is shown above that in Paris there is one birth to each 29.07 adults, or one birth for every 29.07 years of each adult in the child-bearing age. Also the average length of life of the Parisian is 28.05 years. Using these figures, and barring out immigration, the population of Paris in the next generation would be reduced from 2,424,703 to 1,698,679, and in the eighth generation the population of Paris would be reduced to 140,700.

M. Lagneau cites as the principal causes of the present poor demographical position of Paris, first, loose social laws, which lead to late marriages, and to prostitution and adultery, instead of marriage; second, imperfect precautions against disease, especially of infants.

G. N. C.

COLUMBIA COLLEGE, 1894.

FEMALE LIFE MORTUARY EXPERIENCE.

Female Life Mortuary Experience of the New England Mutual Life Insurance Company. Compiled by Walter C. Wright, Actuary.

The subject of the comparative mortality of male and female lives has of late received its due share of attention. The facts as hitherto presented have seemed anomalous and indicative of some inadequacy in the selection of female risks, or of a singular increase of relative risk, because of insurance itself; for, while all mortality tables which are drawn from statistics of the general population, or of annuitants, show women to be longer-lived than men, the tables from assured lives have almost invariably made a contrary showing. It is a relief, therefore, to find that in the experience of the New England

Mutual Life Insurance Company the mortality among women has been very favorable, and not higher than the ratio among men. As compared with several other female experiences, and on the basis of the expectation of the American Table, the experience in the New England, in ratio of actual to expected loss or deaths, is as follows: —

New England,	.787
Thirty American offices,	1.064
Connecticut Mutual,	.945
Provident Life and Trust,	.800
John Hancock,	.823
Farr's Health Female,	.906
British Government Annuity,	.922

This very excellent record of his company Mr. Wright ascribes to the great care taken by his company to be sure that the beneficiary has a financial interest in the life of the insured female. He says: "I am satisfied that this result is largely due to the strictness of the rules of this company regarding the ascertainment of an unquestionable and sufficient existing insurable interest in the life of every woman for whom a policy is written." This seems plausible to us of the United States, where insurable interest is generally thought a very necessary item in life insurance transactions. But Mr. Teece, of the Australian Mutual Provident Society of Sydney, New South Wales, would certainly take issue with this position. In his country and company, he assures me, a man or woman may insure in favor of whomsoever he or she pleases, the only condition being that he or she pleases to insure; no attention whatever is paid by company or colony to the question of insurable interest. Singularly enough, his company is the only one which has yet tabulated its female mortality, that makes a showing nearly as favorable as the New England itself, being .794 of the American expectation. He must needs in this connection give an explanation, too, of the failure of the company to show a materially higher death rate of female lives than of male. He says: "It will be observed that where the assumed ages are dealt with (Mr. Teece's company rates up diseased lives) the actual deaths among females are considerably less than the number expected, according to the company's general experience; even where healthy lives only are dealt with, the actual mortality among females is not materially in excess of that among male lives. We have not far to seek for the cause of this practical agreement. In young countries like the Australasian colonies the deaths from accidental and violent

causes are much more numerous than in old countries, and it is the male lives which are chiefly exposed to the risk of accident. The tables of causes of death given with the medical report show that the violent deaths represented among the males .13 per cent on the exposed to risk as against .03 per cent among the females. It seems probable, therefore, that the excessive death rate among females during the child-bearing period, which is found to rule in old countries, is counterbalanced in these colonies by the accidental deaths among males at somewhat similar ages." This is very ingenious and might be very convincing if it were not for the fact that the death rate of this society, of males and females combined, is the lowest of all the published experiences.

The most surprising thing about the experience of the New England is that, although it covers $4,623,603 at risk, $26,363,641 total exposure, and a loss of $304,296 (Deaths, 161), there were but five deaths in all, amounting to a loss of $6,500, caused by child-birth and attendant diseases and accidents. This strange and exceptional experience goes far to explain the low mortality; but, unless explained by the small number of lives in the reckoning, itself requires explanation. In the Australian Society the deaths from diseases and accidents of parturition, including puerperal fever, were 18 out of a total of 221, which is a much larger percentage of the whole. Of course the number of lives is in both cases too small to give a reliable average, and it would be much more to the purpose if the original data of several of these companies could be combined. But from the data already at hand and classified, it is fairly clear that whatever excessive mortality there is among women because of parturition is quite offset by the extra risks taken by men in other ways; and that, if a good selection can be secured, the insurance of women on the same terms as men will be unfair to neither.

It is, I apprehend, the difficulty of such selection, because of the false modesty of women about sexual disorders — the false modesty itself being again the result of society's false judgment between men and women sexually — that stands in the way of the general adoption of the same rates and conditions for women as for men. One American company is now trying the experiment of coping with that difficulty by employing female physicians, and when its experience has become sufficiently extensive, it should be valuable. It is not im-

probable, though, that it will be found that a woman will not disclose the facts to strange physicians of either sex, and in order to learn the real conditions it will be necessary to refer to all the physicians who have treated her. In any case, the experience of a great company, which has never yet been published, shows that the precautions taken in the cases of male risks presenting themselves produced a very low death rate, while precisely the same precautions in the cases of female risks resulted in a death rate so large as to cause the company to refuse to insure women on any terms.

MILES MENANDER DAWSON.

A MODEL REGISTRATION REPORT.

Beiträge zur Statistik der Stadt Frankfurt am Main. Zweites Heft. *Die Bewegung der Bevölkerung im Jahre 1891, inbesondere Studien über die Wanderungen.* Frankfurt am Main, 1893.

The above work on the vital statistics of Frankfurt is interesting to us not so much from the statistics contained therein as a demonstration of the minuteness and care with which vital statistics should be presented. This exhaustive report is a model of registration which might be copied with advantage by statisticians in charge of our registration reports, both of cities and of states. Our reports are not necessarily inaccurate, but they do not cover enough ground. In this review I shall limit myself to a mere enumeration of the different subjects which are here treated statistically.

The statistics of the movement of population in Frankfurt are presented in two sections. The first section deals with marriages, births, and deaths; the second with the stability of the population, including such questions as emigration and immigration, nativity and natality, etc. For clearness and simplicity I will put the different topics in a more or less tabular form, although in the original each one is treated with the greatest minuteness.

SECTION A.

This is devoted to statistics of marriages, births, and deaths during the year 1891. It includes comparisons with similar statistics of previous years.

I. *General Summary.* Here are compared the statistics of mar-

riages, births, and deaths of Frankfurt and of the entire German kingdom, of Frankfurt and Prussia, and of Frankfurt and the other large cities of Germany for the years 1886–91, inclusive. Here, too, are included statistics of marriages, births, and deaths according to months. Needless to say, the rates per 1000 are worked out in all cases.

II. *Marriages.* All questions regarding marriage which can be answered by statistics are answered here. Tables of statistics show the numbers of marriages according to the ages of the contracting parties, and according to their social conditions. Other questions, such as the percentage of marriages to the total marriageable population, differences in age, and religious relations all receive especial attention and consideration.

III. *Births.* Statistics of births are treated according to sex, vitality, and legitimacy. This is as far as most American registration reports carry the investigation. But in the Frankfurt report additional tables of statistics show: (*a*) The number of births in each of the 52 weeks of the year; (*b*) the religious creeds of the parents; (*c*) the sexual proportion of births; (*d*) the proportion of births in different years to the total number of married women in the child-bearing age; (*e*) the proportion of illegitimate births in different years to the total number of unmarried women in the child-bearing age; (*f*) a comparison, by months, between the natal statistics of Frankfurt and those of 25 other large German cities; (*g*) the local births in the different sections of the city.

IV. *Deaths.* With all of these subjects there are general summaries by which one can tell at a glance the demographical condition of a city. Exhaustive tables are given, however, in all cases, so that the conclusions can always be verified.

The total deaths and death rates are compared first with those of the other large German cities. Then follows in succession the mortality statistics according to (*a*) the different weeks and months of the year; (*b*) the meteorological conditions of the city; (*c*) the causes of death; (*d*) age and social status; (*e*) religion; (*f*) infant mortality; (*g*) the different sections of the city; and (*h*) nativity. In addition to these there are comparisons of the mortality coefficients in different age groups in Frankfurt and in other cities. Mortality statistics of native and foreign born are compared, and the subject of

mortality according to geographical position and density of population is discussed.

SECTION B.

This part of the work deals entirely with the wandering of population in Frankfurt during the year 1891, and as such does not necessarily belong to a report on vital statistics. In a city registration report, however, it is of the greatest importance, and a word or so about the plan of this part of the Frankfurt report may not be out of place.

The following subjects are minutely illustrated by tables of statistics and by summaries: (*a*) Emigration and immigration according to month, calling, and section of the city; (*b*) migration according to sex, age, and family position; (*c*) migration according to natality, nativity, and object of change. In addition to these topics the questions of previous habitation in Frankfurt, the length of time abroad, and the number of returns, etc., are minutely treated.

The report, with its 43 large tables, besides many lesser ones in the text, is a monument of statistical care and thoroughness, and its method of treatment is such as to make it interesting to the ordinary reader.

GARY N. CALKINS.

ILLEGITIMACY; TWO STUDIES IN DEMOGRAPHY.

Illegitimacy, and the Influence of Seasons upon Conduct; Two Studies in Demography. By Albert Leffingwell, M.D. With maps and diagrams. 2nd edition. London. Swan, Sonnenschein & Co.

The writer states that this is the first treatise on illegitimacy in the English language. Its pages are mainly devoted to a consideration of the illegitimate births in the British Islands, while the second essay presents certain phenomena of periodicity in human conduct and mental disease.

After discussing in order the different imputed causes which have prevailed, the author concludes that neither *poverty*, nor *city life*, nor *education* have had any effect upon the rate of illegitimacy. He also takes up the effect of religion, of legislative and legal impediments to marriage, and of heredity, and concludes that the factor of heredity is one of the most potent in its influence upon this departure from social morality.

Not only do the three principal divisions of England present radical differences in the degrees of illegitimacy in each, but different districts often adjoining each other also present still greater differences.

The ratio of illegitimacy per 1000 births in England, Ireland, and Scotland for 12 years, ending with 1889, was as follows: —

Ireland,	26.5
England and Wales,	47.6
Scotland,	82.7

Scotland has then a ratio nearly twice as great as that of England, and more than three times as large as that of Ireland. "What conclusions," says the author, "are we to gather from these facts? That the peasant mother of Ireland is more solicitous for the chastity of her daughters than her sisterhood of Scotland and England? Are the precepts of virtue more highly prized and effectively inculcated in the mud cabins of Mayo than beneath the thatched roof of the Highland cotter? Or is superior virtue the result of education? But the Irish peasantry are steeped in ignorance as compared with the laboring population of North Britain. Shall we infer that vice and poverty go hand in hand? But an Englishman would not kennel his dogs in such cabins as I have seen in Achill and western Ireland. Can it be the effect of religious training and influence? But Scotland rejoices in the open Bible and the right to private judgment, while Ireland submits her conscience to the control of her priesthood and the guidance of an Infallible Church."

In tracing the rate of illegitimacy more minutely he shows that in the county of Down in Ulster, Ireland, the illegitimate birth rate was 51.1, while in county Mayo, in Connaught, it was only 5.6. In the north-eastern counties of Scotland, including Banff and Aberdeen, it was 141, while in the north-western counties (Ross, Cromarty, and Inverness) it was 64, and these ratios were fairly constant from year to year.

In Massachusetts the average ratio for the 20 years 1871–90 was 17.1 per 1000 births. The rate increased till 1887 when it was 21.8, and since then it has decreased to 15 in 1892.

The figures for the counties for the ten years 1881–90 were as follows: —

Barnstable,	20.2	Hampshire,	10.1
Berkshire,	9.7	Middlesex,	14.6
Bristol,	8.8	Nantucket,*	37.6
Dukes,*	29.1	Norfolk,	7.4
Essex,	11.1	Plymouth,	11.9
Franklin,	9.9	Suffolk,	46.1
Hampden,	8.8	Worcester,	7.1
Massachusetts,	19.4		

* Five years only.

S. W. A.

CITY OF BOSTON BILLS OF MORTALITY, 1810-49.

Bills of Mortality, 1810–49. City of Boston. With an Essay on the Vital Statistics of Boston from 1810 to 1841. By Lemuel Shattuck. Boston. Reprinted for the Registry Department. 1893.

The great rarity of American vital statistics for the first half of the present century makes this volume an exceedingly interesting one to the statistician. Mr. Whitmore, the City Registrar of Boston, has accomplished a useful service in republishing the paper of Mr. Shattuck, which, like the later Report of the Sanitary Commission of 1850 (also the work of Mr. Shattuck), is a document of much value.

The following estimates of the population are also presented for decades in the 18th century: —

	1725–34.	1735–44.	1745–54.	1755–64.	1765–74.
Average Population, White	11,900	14,750	14,190	14,390	14,672
" " Black	1,100	1,250	1,541	1,241	848
Total	13,000	16,000	15,731	15,631	15,520
Average annual mortality	502	570	671	514	521
Death rate per 1,000	38.6	35.6	42.6	32.8	33.5

Statistics of small-pox show that in 1721 more than half the population of Boston were sick with this loathsome disease, and 844, or 7.7 per cent of the population, died of the same disease. Tables are presented giving the distribution of the population by age, sex, and color at different periods from 1765 to 1830, also the increase of

population, the deaths at different ages, the mortality of different sexes, and seasons of the year.

The classification of diseases is mainly in three groups: —

1. Endemic, epidemic, and contagious.
2. Sporadic.
3. Deaths by violence.

The earlier statistics of all countries are impaired by the large number of deaths by unknown causes, and those of uncertain seat. The ratio of these, however, appears to have largely diminished from 1810 to 1840. The death returns from 1810 to 1850 occupy 81 pages, and present the deaths by months, age periods, sex, and causes of death. It is interesting to note that some of the common causes of death, such as Bright's disease and diphtheria do not appear at all in these lists, a fact which is not to be explained by any theory that they did not then exist. The explanation lies partly in a change of nomenclature, and also very largely in the progress of medical science, which has enabled the medical profession in later years to determine the character of diseases with much greater certainty. For example, in 1818, out of a total of 971 deaths, 260, or nearly 27 per cent, were recorded as having died from unknown causes and from dropsy, and there were none from kidney diseases, while in 1890 the deaths from unknown causes were only 1.2 per cent, and those from kidney diseases constituted 3 per cent of the total mortality.

S. W. A.

GEOGRAPHIC STATISTIC TABLES OF THE WORLD.

Otto Hübner's Geographisch-statistische Tabellen aller Länder der Erde. 42. Ausgabe für das Jahr 1893. Herausgegeben von Univ. Prof. Dr. Fr. v. Juraschek. Heinrich Keller. Frankfurt a. M.

This excellent statistical summary is published in the form of a large sheet, which may be mounted and hung upon a wall; and also as a pamphlet of 91 pages, the latter containing a few additional condensed tables.

The following topics are statistically presented in separate columns:

Name of country and form of government.
Name of ruler and year of birth.
Area of country in square kilometers.

Population, civil and military.
Density of population, expressed as inhabitants per sq. kilometer.
Migration.
Nationalities represented in each country.
Religions. Number of each per 1000 of the total population.
Receipts. Expenses. Debt.
Paper money. Bank notes.
Army. (Peace and war footing).
Navy. Number of ships and guns.
Merchant marine. Number of vessels, Tonnage.
Value of imports and exports in million marks.
Railroads and telegraphs, length in kilometers.
Value of coinage, compared with the standard *mark*.
Weights and measures of length and capacity as compared with the kilogram, meter, and liter.
Principal products.
Chief cities, with population of each.

These statistics of 70 countries occupy 84 pages. A few changes have been made, and the data of each country are carefully brought up to the latest practicable date. Beloochistan is in this year grouped under the protecting wing of Great Britain. Then follow some very condensed and useful statistics, occupying two pages only, of 22 principal countries, in parallel columns for comparison, embracing the comparative numbers of men and women in each, the extremes being Bosnia, with 895 women to 1000 men, and Portugal, with 1084 women to 1000 men.

Of *births* in 10,000 of the living population France had the lowest ratio, 226, and Russia the highest, 476.

Of *deaths* Sweden had the lowest ratio, 171 per 10,000, and Russia the highest, 334.

Of *marriages* Sweden had the lowest, 60 per 10,000, and Servia the highest ratio, 100 per 10,000.

Other statistics presented on these pages are the number of school children in elementary and other schools; illiteracy among soldiers, and population in general.

Newspapers. Largest number, United States, 16,319.

Land statistics. Unproductive land. Finest meadow and pasturage. Tillage. Vineyards.

Cattle and other live stock,— numbers.

Chief agricultural products in million hectoliters. Wheat, rye,

oats, barley, buckwheat, potatoes, maize and wine, coal, iron and sugar.

Cotton spindles.

Railroads.

Then follow several pages devoted to areas and populations in parallel columns.

The total area of land surfaces is given by the author as 135,454,265 sq. kilometers = 52,298,900 sq. miles nearly.

The population of the world for 1893 the author gives as 1,487,000,000, or three millions more than his estimate for 1892. The density of population being 10.96 inhabitants per sq. kilometer = 28.4 per sq. mile.

In the two final pages the imports and exports of different countries are compared in parallel columns. The titles of 192 reports, publications, and authorities from which this summary is compiled are given. Every available space is used in this little pamphlet, and a considerable number of "extra" subjects are here and there inserted in the text, as, for example, the cotton product of the United States and Egypt, pages 46 and 83. New books published in Germany, Great Britain, and Russia. Canal statistics. Savings banks in European countries. Gold and silver production and sugar manufacture. S. W. A.